

chamfered front edge 45 in a lower part of the same. Therefore, it will be readily appreciated that, after inspection panel 40 has been retracted slightly from inspection opening 42, engagement portion 46 is accessible from the upper side of conveyor pan 1. Accordingly, the lifting device can be engaged with engagement portion 46, and one side of inspection panel 40 can be lifted upwards. Here, it will be appreciated that face-side profile rails 5, 6 are welded to bottom plate 4 along the entire length of the same, whereas a slot is provided between the corresponding profile rails 5, 6 on the opposite side at the position where inspection opening 42 is formed. The slot is configured such that, after inspection panel 40 has been partially retracted from inspection opening 42, the same can pivot inside the slot to allow lifting of the opposite side of inspection panel 40 by the lifting device. After inspection panel 40 has been lifted, it can then be removed from conveyor pan 1, for example, by moving the same towards the face side over upper face-side profile rail 5. Of course, re-insertion of inspection panel 40 can be performed in the same manner.

[0050] FIG. 9 shows the configuration of inspection panel 40 and bottom plate 4 after extended use of conveyor pan 1. Here, it can be seen that, although both inspection panel 40 and bottom plate 4, in particular, the part 41 of the same engaging with inspection panel 40, are worn considerably, there is still a tight connection between the same to prevent material from entering the bottom part of conveyor pan 1. In particular, as shown in FIG. 10, due to engagement portion 46 being formed in the lower part of chamfered front edge 45, the same is protected by the chamfered part 41 of bottom plate 4, such that it is not affected by wear. Therefore, even in the worn stage shown on the right side of FIG. 10, inspection panel 40 can be reliably removed by engagement with the lifting device. It will be appreciated that engagement portion 46 is not limited to the exemplary configuration described above, and can have any suitable configuration that allows for engagement with the lifting device.

INDUSTRIAL APPLICABILITY

[0051] The above-described embodiments of the conveyor pan and its various parts disclosed herein can be used to provide a conveyor pan with an increased wear resistance, for example, for use in underground mining. In particular, the combination of the above-described improvements may result in that a conveyor pan for a chain scraper conveyor has a significantly increased durability. For example, a wear limit of the upper part of the conveyor pan disclosed herein may be up to 40 mm, in comparison to 20 mm for a known conveyor pan.

[0052] In addition, with the tapered surface 22 provided for the profile flange 8 of each profile rail 5, 6, a total height of conveyor pan 1 can be decreased for a bottom plate 4 having the same thickness, or remain the same for a bottom plate 4 having an increased thickness. This is facilitated by tapered surface 22 extending over the entire length of profile rails 5, 6.

[0053] Likewise, the provision of inspection opening 42 that is closed on one side allows for a continuous weld over the entire length in the longitudinal direction between the profile rails and the bottom plate on that side, resulting in an increased strength of the conveyor pan.

[0054] Although the preferred embodiments have been described herein, improvements and modifications may be incorporated without departing from the scope of the following claims.

[0055] For example, while the conveyor pan 1 described above has been described as a so-called mono conveyor pan, i.e., a one-piece conveyor pan, the present disclosure is not limited to such a mono conveyor pan. For example, the profile rails and/or connection members described herein could also be used in a so-called hybrid pan, where only the upper or lower profile rails are welded to a corresponding bottom plate to form an exchangeable trough. Likewise, the configuration of inspection panel 40 described herein can also be used in other types of conveyor pans, independent from the configuration of the side profiles of the same. In the same manner, the pocket member 11 described herein can also be used in other types of conveyor pans, independent from the configuration of profile rails 5, 6 and bottom plate 4.

1. A conveyor pan for use in mining applications, in particular, for a chain scraper conveyor, comprising:

a bottom plate; and

a pair of side profiles configured to be fixed to the bottom plate by welding, each of the pair of side profiles comprising at least one profile rail extending along a longitudinal direction (Z) with a substantially T-shaped cross-section and including a profile flange extending in a transverse direction (X) and a profile web extending from the profile flange,

wherein the profile web includes a recess formed in a distal end of the same, the recess extending from a side surface of the profile web to a bottom surface of the profile web, at least part of the recess extending at an angle (α) of less than 40° with respect to the transverse direction.

2. The conveyor pan of claim 1, wherein the angle (α) is between 15° and 39°, in particular, between 18° and 25°, for example, around 20°.

3. The conveyor pan of claim 1, wherein a ratio of a width (w) of the bottom surface to a depth (d) of the recess when viewed in a direction perpendicular to the transverse direction (X) is between 0.08 and 0.4, in particular, between 0.13 and 0.37.

4. The conveyor pan of claim 1, wherein the recess, in a cross-section perpendicular to the longitudinal direction (Z), includes a substantially straight central portion extending at the angle (α) with respect to the transverse direction (X), and an arcuate portion extending from the straight central portion to the bottom surface.

5. The conveyor pan of claim 1, wherein the recess is configured as substantially a J-groove for forming a single-J weld between the profile rail and the bottom plate.

6. The conveyor pan of claim 1, wherein the profile flange includes a tapered surface extending at an angle (β) of between 5° and 25°, in particular, between 6° and 10°, with respect to the transverse direction (X) to a side opposite to the side on which the recess is formed.

7. The conveyor pan of claim 1, wherein the profile rail extends along the longitudinal direction (Z) with a constant cross-section.

8. The conveyor pan of claim 1, wherein each of the pair of side profiles comprises a first profile rail and a second